



US006519547B2

(12) **United States Patent**  
Lazauski et al.

(10) Patent No.: **US 6,519,547 B2**  
(45) Date of Patent: **Feb. 11, 2003**

(54) **METHOD FOR DETERMINING ACOUSTIC IMPACT OF UNDERWATER ACOUSTIC SOURCES ON MARINE ANIMALS**

(75) Inventors: Collin J. Lazauski, West Kingston, RI (US); Glenn H. Mitchell, Jamestown, RI (US); Thomas N. Fetherston, II, Wakefield, RI (US)

(73) Assignee: The United States of America as represented by the Secretary of the Navy, Washington, DC (US)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 130 days.

(21) Appl. No.: 09/770,761

(22) Filed: Jan. 23, 2001

(65) Prior Publication Data

US 2002/0099515 A1 Jul. 25, 2002

(51) Int. Cl.<sup>7</sup> ..... G01V 1/38; A01M 29/02; G06F 15/00

(52) U.S. Cl. .... 702/139; 702/159; 367/139; 367/188

(58) Field of Search ..... 702/139, 150, 702/159; 367/139, 111, 173, 188; 116/22 A; 181/122, 401, 402

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Primary Examiner—Kamini Shah

(74) Attorney, Agent, or Firm—Michael J. McGowan; Michael F. Oglo; James M. Kasischke

(57) **ABSTRACT**

A method is provided to estimate acoustic impacts to marine animals within a chosen area. The method begins with data collection on types of acoustic sources to be modeled, animal assemblages in the chosen area, environmental characteristics of the area and on relevant environmental regulations. An acoustic model, appropriate for the chosen area and its environmental characteristics, is then selected and generates a source footprint of all sources to be located at the site. The marine animal distribution is then overlaid onto the acoustic propagation at the site. The marine animal distribution is time-weighted to correspond with the proposed acoustic source usage, as well as short term and seasonal marine animal behavior patterns. The total number of impacted marine animals is then calculated. Impacts are calculated by species, source, scenario and season. The calculated number is then rounded upwards to the next whole individual, pod, or group, depending on the animals' behavior patterns.

21 Claims, 2 Drawing Sheets

